

CLAIMS:

1. (Cancelled)

2. (Currently Amended) The medical device according to claim, ~~+10~~ wherein the medical device comprises a heart valve for regulating the flow of blood through the medical device.

3. -7 (Canceled)

8. (Currently Amended) The medical device according to claim ~~+10~~ wherein the telemetric communication means comprises an integrated circuit.

9. (Canceled)

10. (Currently Amended) ~~The medical device according to claim 1-A medical device adapted to be implanted in the heart of a patient and operable therein i) as a heart valve; or ii) to assist in the functioning of one of the patient's heart valves; the medical device comprising;~~

at least one sensor for sensing a physiologically or clinically relevant parameter of the patient wherein said at least one sensor includes a piezoelectric sensor comprising a polymeric active sensing area which senses blood pressure of the patient;

telemetric communication means comprising an RFID device for telemetrically transmitting data related to the parameter sensed by the sensor to a remote device; and

wherein said at least one sensor includes at least two spaced apart piezoelectric sensors for sensing blood pressure at different locations in the heart of the patient, each of the spaced apart sensors comprising a polymeric active sensing area which senses blood pressure of the

patient.

11. (Currently Amended) ~~The medical device according to claim 10~~ A medical device adapted to be implanted in the heart of a patient and operable therein i) as a heart valve; or ii) to assist in the functioning of one of the patient's heart valves; the medical device comprising;

at least one sensor for sensing a physiologically or clinically relevant parameter of the patient wherein said at least one sensor includes a piezoelectric sensor comprising a polymeric active sensing area which senses blood pressure of the patient;

telemetric communication means comprising an RFID device for telemetrically transmitting data related to the parameter sensed by the sensor to a remote device;

wherein said at least one sensor includes at least two spaced apart piezoelectric sensors for sensing blood pressure at different locations in the heart of the patient, each of the spaced apart sensors comprising a polymeric active sensing area which senses blood pressure of the patient; and

wherein the telemetric communication means telemetrically transmits data related to the difference in the blood pressures sensed by the at least two spaced apart sensors.

12. (Currently Amended) The medical device according to claim 110 wherein said ~~at least one sensor~~piezoelectric sensors also sense ~~sense~~ acoustic signals.

13. (Canceled)

14. (Currently Amended) The medical device according to claim 12 wherein said piezoelectric ~~sensors~~sensors ~~sense~~sense both blood pressure and acoustic signals.

15. – 17. (Cancelled)

18. (Currently Amended) A medical device according to claim ~~4~~¹⁰ wherein the polymeric active sensing area comprises PVDF.

19. (Currently Amended) The medical device according to claim ~~4~~¹⁰ wherein the medical device comprises a tissue valve device having a valve wall formed from tissue.

20. (Currently Amended) The medical device according to claim 19 further comprising a stent support for the valve wall, and wherein the ~~sensors~~^{piezoelectric sensors} and the telemetric communication means are disposed between the stent support and the valve wall.

21. (Original) The medical device according to claim 19 wherein the medical device is stentless.

22. (Currently Amended) The medical device according to claim 19 further comprising a protective cover disposed around the periphery of the medical device, and wherein the ~~piezoelectric sensors~~^{sensors} and the telemetric communication means are disposed between the valve wall and the protective cover.

23. (Currently Amended) The medical device according to claim ~~4~~¹⁰ wherein the medical device comprises a mechanical heart valve.

24. – 33 (Cancelled)